



Massachusetts
Department
of
ENVIRONMENTAL
PROTECTION

Summary

Cost Savings:
\$21,638

Project:
Commercial
Renovation of
existing
structure (6,300
sq. ft.) and New
construction
(10,500 sq. ft.)

**Total Waste
Reduction:**
83%

- 569 tons reused/recycled: asphalt paving, concrete, wood, metal, cardboard and slate
- 118 tons disposed

Contract:
\$3.1 million
Lump-sum,
Public owner

Work Site:
Urban

Completion:
January 2003

Construction and Demolition Waste Reduction

This case study is one in a series developed by Massachusetts Department of Environmental Protection (DEP) to highlight techniques for saving money and protecting the environment through reuse and recycling of construction and demolition debris.

Project Description: Milford Fire Station, Milford, Massachusetts

Consigli Construction Inc. was the lead contractor for renovations and an addition to the historic Milford Fire Station. Built in 1844, the brick structure is located in a congested urban area. Consigli recycled and reused 569 tons of material and disposed of 118 tons of mixed construction and demolition waste, for a total waste reduction rate of 83 percent.



Spotlight: Sorting Recyclables on a Tight Urban Site

Source separation requires the contractor to sort and segregate recyclable materials from construction and demolition debris. This isn't always easy on a cramped urban site due to lack of sufficient space for recycling roll-off containers.

In this case, Consigli improvised by using the bays of the fire station and neighboring properties for container storage. Consigli reduced source separation costs by moving materials from the work area to the containers with a Lull (similar to a forklift) instead of by hand.

Here is a breakdown of the cost savings that were realized through source separation and recycling:

Material	Tons	Recycling Cost	Avoided Disposal Cost*	Savings
Asphalt Paving	329	\$790	\$13,160	\$12,370
Concrete	192	\$1,910	\$7,680	\$5,770
Wood	20	0	\$2,300	\$2,300
Metal	7.7	\$279	\$577	\$298
Cardboard	2.4	0	\$180	\$180
Slate	18	0	\$720	\$720
TOTALS	569.1	\$2,979	\$24,617	\$21,638

**Cost that would have been paid if material was disposed.*

Disposal costs based on local rates in 2002.

Keys to Success: Source Separation

There are a number of steps the architect and contractor can take to minimize the costs and environmental impacts of a renovation project:

Planning. Discuss waste handling requirements with crew and subcontractors before beginning a project and re-emphasize their importance as work progresses.

- Coordinate timing of demolition and removal of recyclables to handle certain materials separately.

During Construction. Clearly designate and monitor the recycling bins to prevent cross contamination. Post lists of what is and is not recyclable on the containers.

- Place garbage and recycling bins near each other and close to the point of waste generation, but out of the traffic pattern.
- Consider locking the recycling bins or locating them in a secure area to prevent illegal dumping of household trash.

Contracting with Haulers. Negotiate a contract that encourages recycling.

- Consider purchasing dumpsters to avoid rental costs.
- Contract for larger hauls of full containers “on-demand” rather than regularly scheduled pickups when containers might not be full.

Project Team

- **Building Owner**

Town of Milford, 1 Spruce Street, Milford, MA 01757
Contact: John Touhey, Fire Chief, (508) 473-2256

- **Contractor**

Consigli Construction Inc.
197 East Main Street, Milford, MA 01757, Telephone: (508) 473-2580, ext. 359
Contacts: Mike Socci, Project Manager, and John Laperle, Superintendent

- **Recycling Consultant**

greenGoat, P.O. Box 441911, Somerville, MA 02144, Telephone: (617) 666-5253
Contact: Amy Bauman, President

Additional Resources on Contracts and Specifications

- Massachusetts Department of Environmental Protection (DEP) Web site on Construction and Demolition Materials: Reuse and recycling resources for building and demolition contractors includes case studies, model specifications, and best practices. <http://www.state.ma.us/dep/recycle/recycle.htm>
- Vermont Agency for Natural Resources (VANR) Web site provides links to model contract specifications and sample waste plans that include source separation components at: <http://www.anr.state.vt.us/dec/wastediv/recycling/c&d.htm>

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